



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/768,966

01/30/2004

Colm V. Cryan

OIC-PT005.1

4543

3624

7590

04/19/2005

VOLPE AND KOENIG, P.C.
UNITED PLAZA, SUITE 1600
30 SOUTH 17TH STREET
PHILADELPHIA, PA 19103

EXAMINER

LIN, TINA M

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/768,966	CRYAN ET AL.	
	Examiner	Art Unit	
	Tina M. Lin	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

The disclosure is objected to because of the following informalities: On Page 6, Line 4 of the Specification, the sentence ending with the phrase “the mode of the” appears to be an incomplete sentence. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 5, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,243,522 B1 to Allan et al. Allan et al discloses an optical waveguide fiber with a graded index core body (Column 3 Lines 42-46) where a perform is drawn, heated and fused (Column 3 Lines 12-20) with a plurality of low index rods and at least one high index rod (Figure 3A, Figure 8, Column 3 Lines 23-24 58-60, and Column 4 Lines 4-6) arranged in a predetermined pattern (Column 4 Line 34). Allan et al also discloses the rods being fused together and in direct contact with each other. Lastly, Allan et al teaches the index rods to be made of glass. (Column 2 Line 47) But Allan et al fails to disclose the entire fiber to be a graded index fiber, Allan et al only discloses a core being a graded index. However, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have drawn, heated and fused an entire fiber to be a graded index fiber by the same process instead of just the core, depending on the requirement of the application of the fiber. Allen et al further fails to disclose each of the

Art Unit: 2874

low index rods having a single refractive index and the high index rods having only a single refractive index. However, Allen et al discloses the composition and arrangement of the rods forming the core and the clad rods can be varied and in different combination so that the assembly can be used to produce different function properties. (Column 3) Since Applicant does not disclose each of the low index rods having a single refractive index and the high index rods having only a single refractive index solves any stated problem or is for any particular purpose and Allen et al discloses an variety of arrangements of rods having different refractive indexes, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used the appropriate refractive indexes of the rods in order to achieve the desired result and function. Lastly, Allen et al fails to disclose the mode of the light transmitted from the first end to the second end to be substantially maintained. However, Allen et al disclose the fiber to be a single mode fiber. Since the fiber only has one mode and Applicant states in the Specification (page 6) that it is "common in some GRIN fibers" to "preserve the mode of the transmitted signal", it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have maintained the mode in the fiber, especially since there is only one mode transmitted through the fiber.

Claims 2-4 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,243,522 B1 to Allan et al as applied to claims 1 and 10 respectively above. In reference to Claims 2-4 and 11-13, Allan et al discloses a fiber with a graded-index profile and with a plurality of low index rods and at least one high index rod (Figure 3A, Figure 8, Column3 Lines 23-24 58-60, and Column4 Lines 4-6). But Allan et al fails to disclose an arrangement of intermediate index rods having at least two different indices. Allan et al also fails to disclose an

Art Unit: 2874

arrangement of index rods to provide a desired refractive index distribution. However, Allan et al does disclose a structure with a graded index profile. (Column 4 Lines 27-30) It is well known in the art that a graded index fiber will have multiple indices of refractions, since the definition of a graded index fiber is a fiber having many indices (i.e. a gradation from fiber center to periphery). Therefore, it would have been obvious at the time the invention was made to a person with ordinary skill in the art to have placed additional rods in a predetermined arrangement with different indices in the perform to obtain the desired refractive index of a optical fiber.

Claims 7-9 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,243,522 B1 to Allan et al as applied to claim 1 above. Allan et al discloses an optical waveguide fiber with core having a graded index profile. (Column 4 Line29) Allan et al further discloses a drawn, heated and fused preform (Column 3 Lines 12-20) with a plurality of low index rods and at least one high index rod (Figure 3A, Figure 8, Column3 Lines 23-24 58-60, and Column4 Lines 4-6) arranged in a predetermined pattern (Column 4 Line 34). Allan et al also discloses an array of graded index fibers in Figure 8. But Allan et al fails to disclose a graded index fiber with a center located at a specified position, the fused fibers located in a predetermined pitch and an arrangement of fused fibers into an array. However, Allan et al does disclose array of graded index fibers in Figure 8 show that the fused fibers are also capable of being placed in an array. Therefore, it would have been obvious at the time the invention to a person with ordinary skill in the art to have a graded index fiber placed in a specific location and to have the fused fibers arranged in an array located in a predetermined pitch.

Art Unit: 2874

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,243,522 B1 to Allan et al as applied to claim 1 above, and further in view of U.S. Patent 6,091,872 to Katoot. Allan et al discloses an optical waveguide fiber with a graded index profile. (Column4 Line29) Allan et al further discloses a drawn, heated and fused preform (Column 3 Lines 12-20) with a plurality of low index rods and at least one high index rod (Figure 3A, Figure 8, Column3 Lines 23-24 58-60, and Column4 Lines 4-6) arranged in a predetermined pattern (Column 4 Line 34). Lastly, Allan et al teaches the index rods to be made of glass. (Column 2 Line 47) But Allan et al. fails to disclose the low and high index rods to be formed of a polymer. However, Katoot discloses an optical bundle drawn and fused (Column 9 Lines 13-15). Katoot further discloses the optical fibers to be made of glass or polymers. (Column 10 Lines 5-6) Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have formed low and high index rods with a polymer material in place of glass.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited by the Examiner and not relied upon in the rejection above all discuss similar configurations and methods of creating fiber bundling and fusing fibers together.

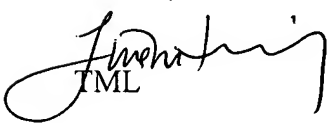
This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

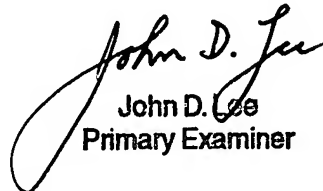
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M. Lin whose telephone number is (571) 272-2352. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TML



John D. Lee
Primary Examiner